

NIST develops energy efficient cooling

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A National Institute of Standards and Technology scientist has developed a way to improve energy efficiency in cooling large commercial buildings.

The method, if confirmed through experiments with full-scale chiller systems, could save as much as 1 percent of the 320 billion kilowatt hours of electricity now used annually to cool such buildings. That's an equivalent 920,000 barrels of oil each day, said Mark Kedzierski, the NIST mechanical engineer who developed the technique.

The advance builds on past NIST research designed to optimize mixtures of chiller refrigerants with lubricants. The researchers discovered that some lubricants, when injected in small amounts, can significantly enhance evaporator heat transfer, increasing the efficiency of chillers.

Studying the method more closely, they found the most efficient heat transfer occurred when the added oil's surface tension, viscosity, composition and chemical characteristics complemented those of the chiller's base lubricant.

The process is described online at the Prior Art Database, ip.com.

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